



**NOAA Technical Memorandum NMFS-SEFSC-361**

# **PROCEEDINGS OF THE TWELFTH ANNUAL WORKSHOP ON SEA TURTLE BIOLOGY AND CONSERVATION**

**25-29 February 1992  
Jekyll Island, Georgia**

**Compilers:**

**James I. Richardson  
Thelma H. Richardson**

**U.S DEPARTMENT OF COMMERCE  
Ronald H. Brown, Secretary**

**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
D. James Baker, Administrator**

**NATIONAL MARINE FISHERIES SERVICE  
Rolland A. Schmitten, Assistant Administrator for Fisheries**

**February 1995**

**The Technical Memorandum Series is used for documentation and timely communication of preliminary results, interim reports, or special-purpose information. Although the Memoranda are not subject to complete formal review, editorial control, or detailed editing, they are expected to reflect sound professional work.**

# RADIO AND SONIC TRACKING OF GREEN AND LOGGERHEAD SEA TURTLES AT SOUTH PADRE ISLAND, TEXAS

---

Maurice L. Renaud

Galveston Laboratory, NMFS, Texas USA

---

It is well known that hopper dredging can be fatal to sea turtles (Dickerson and Nelson, 1990). Due to mounting concern by the U. S. Army Corp of Engineers (Galveston and New Orleans Districts), a plan to study sea turtle behavior near dredged channels was funded in 1990. The objectives of the study were 1) to determine sea turtle behavior and movement in the lower Laguna Madre and Brazos Santiago Pass area near the jetties and 2) to characterize these habitats and available food items (Landry et al., 1992). This paper deals with the movements and submergence patterns of sea turtles.

Four green sea turtles (*Chelonia mydas*) and one loggerhead sea turtle (*Caretta caretta*) were fitted with radio and sonic transmitters and released at their capture sites near South Padre Island, TX. Four of the 5 sea turtles exhibited what could be interpreted as home range behavior, i.e., they remained in a 0.6-3.9 sq km area encompassing their capture/release site. Feeding preferences may account for the limited movement of these sea turtles. All of the tracked green sea turtles were in or close to habitats abundant in food items: algae at the jetties or seagrass in the Laguna Madre. One green sea turtle remained at the jetties during the entire study. Three other green sea turtles were associated with seagrass beds and the margins of ship channels and intracoastal waterway (ICWW). All were active during daylight hours, with little or no movement at night. It was hypothesized that channels were used as thoroughfares for quick transit from one area to another. The loggerhead sea turtle was always in close proximity to the ICWW and adjacent seagrass beds which contained an abundance of food items such as crabs and small fish.

Two types of submerged behavior were exhibited by the sea turtles. Periods of high activity (submergence of less than 20 minutes), possibly foraging, occurred during the daytime for both green and loggerhead sea turtles. Loggerhead sea turtles apparently spent some time foraging at night based on moderate periods of activity. Resting behavior (submergence greater than 20 minutes), generally observed at night, also occurred minimally during the day for both species of sea turtles.

Seagrass beds typically border the navigable channels of the lower Laguna Madre. Daytime observations reflect sea turtle movement in or adjacent to the channels and in seagrass beds. Sea turtles tracked in this study, however, spent most of their time on the edge of the channels or at the jetties. Movement into the channel proper occurred but was uncommon. The extent and duration of these excursions into the channel habitat is unknown at this time. Turtles may be susceptible to dredging when in the channel. Information on habitat utilization by these animals needs further detail to assess the full impact of hopper dredges on sea turtle populations in inshore areas.

## LITERATURE CITED

- Dickerson, D. D. and D. A. Nelson 1990. "Proceedings of the National Workshop on Methods to Minimize Dredging Impacts on Sea Turtles, 11 and 12 May 1988, Jacksonville, Florida," Miscellaneous Paper EL-90-5, US Army Engineer Waterways Experiment Station, Vicksburg, MS.
- Landry, A. M. Jr., D. T. Costa, B. B. Williams and M. S. Coyne. 1992. Sea turtle capture and habitat characterization study. Unpublished report submitted to the National Marine Fisheries Service, 4700 Avenue U, Galveston, TX 77551. 109pp.